Recursive Formula

Unit 6: Representations of Linear Relations

Identify the first term of the sequence and the common difference, and then find the recursive formula.

1. $-39, -43, -47, -51, \ldots$

$-43 - (-39) = -4$
$-47 - (-43) = -4$
$-51 - (-47) = -4$

$a_1 = -39$

Formula is $a_n = a_{n-1} - 4$

2. $-34, -40, -46, -52, \ldots$

$-40 - (-34) = -6$
$-46 - (-40) = -6$
$-52 - (-46) = -6$

$a_1 = -34$

Formula is $a_n = a_{n-1} - 6$

3. $16, 11, 6, 1, \ldots$

$11 - (16) = -5$
$6 - (11) = -5$
$1 - (6) = -5$

$a_1 = 16$

Formula is $a_n = a_{n-1} - 5$

4. $-31, -22, -13, -4, \ldots$

$-22 - (-31) = 9$
$-13 - (-22) = 9$
$-4 - (-13) = 9$

$a_1 = -31$

Formula is $a_n = a_{n-1} + 9$

5. $16, 6, -4, -14, \ldots$

$6 - (16) = -10$
$-4 - (6) = -10$
$-14 - (-4) = -10$

$a_1 = 16$

Formula is $a_n = a_{n-1} - 10$

6. $7, 107, 207, 307, \ldots$

$107 - (7) = 100$
$207 - (107) = 100$
$307 - (207) = 100$

$a_1 = 7$

Formula is $a_n = a_{n-1} + 100$

7. $39, 59, 79, 99, \ldots$

$59 - (39) = 20$
$79 - (59) = 20$
$99 - (79) = 20$

$a_1 = 39$

Formula is $a_n = a_{n-1} + 20$

8. $35, 135, 235, 335, \ldots$

$135 - (35) = 100$
$235 - (135) = 100$
$335 - (235) = 100$

$a_1 = 35$

Formula is $a_n = a_{n-1} + 100$

9. $34, 28, 22, 16, \ldots$

$28 - (34) = -6$
$22 - (28) = -6$
$16 - (22) = -6$

$a_1 = 34$

Formula is $a_n = a_{n-1} - 6$

10. $30, 34, 38, 42, \ldots$

$34 - (30) = 4$
$38 - (34) = 4$
$42 - (38) = 4$

$a_1 = 30$

Formula is $a_n = a_{n-1} + 4$

11. $-7, -15, -23, -31, \ldots$

$-15 - (-7) = -8$
$-23 - (-15) = -8$
$-31 - (-23) = -8$

$a_1 = -7$

Formula is $a_n = a_{n-1} - 8$

12. $13, 19, 25, 31, \ldots$

$19 - (13) = 6$
$25 - (19) = 6$
$31 - (25) = 6$

$a_1 = 13$

Formula is $a_n = a_{n-1} + 6$

13. $-32, -35, -38, -41, \ldots$

$-35 - (-32) = -3$
$-38 - (-35) = -3$
$-41 - (-38) = -3$

$a_1 = -32$

Formula is $a_n = a_{n-1} - 3$

14. $-27, -25, -23, -21, \ldots$

$-25 - (-27) = 2$
$-23 - (-25) = 2$
$-21 - (-23) = 2$

$a_1 = -27$

Formula is $a_n = a_{n-1} + 2$

15. $-24, -14, -4, 6, \ldots$

$-14 - (-24) = 10$
$-4 - (-14) = 10$
$6 - (-4) = 10$

$a_1 = -24$

Formula is $a_n = a_{n-1} + 10$

16. $11, 19, 27, 35, \ldots$

$19 - (11) = 8$
$27 - (19) = 8$
$35 - (27) = 8$

$a_1 = 11$

Formula is $a_n = a_{n-1} + 8$

17. $30, 32, 34, 36, \ldots$

$32 - (30) = 2$
$34 - (32) = 2$
$36 - (34) = 2$

$a_1 = 30$

Formula is $a_n = a_{n-1} + 2$

18. $-9, 21, 51, 81, \ldots$

$21 - (-9) = 30$
$51 - (21) = 30$
$81 - (51) = 30$

$a_1 = -9$

Formula is $a_n = a_{n-1} + 30$

19. $30, 39, 48, 57, \ldots$

$39 - (30) = 9$
$48 - (39) = 9$
$57 - (48) = 9$

$a_1 = 30$

Formula is $a_n = a_{n-1} + 9$

20. $35, 25, 15, 5, \ldots$

$25 - (35) = -10$
$15 - (25) = -10$
$5 - (15) = -10$

$a_1 = 35$

Formula is $a_n = a_{n-1} - 10$